WHAT IS CLAIMED IS:

1. A network system for carrying out communication between a control station and a plurality of devices connected to a network, wherein such communication includes data communication which requires real-time attributes and message communication which does not require real-time attributes, and wherein the data communication includes a first data communication in which data is transmitted from the control station to the devices and data in response to this transmission is transmitted from the devices to the control station, and a second data communication in which data is transmitted from the control station at a prescribed timing, comprising:

a plurality of transmission queues for temporarily storing transmission data provided in the control station, wherein one of the queues holds transmission data for the second communication;

wherein after the first data communication is carried out in accordance with a predetermined cycle time, an appropriate switching between the message communication and the second communication is carried out in the remaining time of the cycle time to complete one cycle, whereafter the cycle is repeatedly carried out.

2. A network system for carrying out communication between a control station and a plurality of devices connected to a network, wherein such communication includes data communication which requires real-time attributes and message communication which does not require real-time attributes, comprising:

a function provided in the control station for independently establishing a cycle time for communication;

wherein the established cycle time is referenced at each communication cycle to determine the current cycle time; and

wherein after the data communication is carried out, the message communication is carried out in the remaining time of the established cycle time to complete one cycle, whereafter the cycle is repeatedly carried out.

3. A control station for use in a network system for carrying out communication between the control station and a plurality of devices connected to a network, wherein such communication includes data communication which requires real-time attributes and message communication which does not require real-time attributes, and wherein the data communication includes a first data communication in which data is transmitted from the control station to the devices and data in response to this transmission is transmitted from the devices to the control station, and a second data communication in which data is transmitted from the control station at a prescribed timing, comprising:

a plurality of transmission queues for temporarily storing transmission data, wherein one of the queues holds transmission data for the second communication; and

control means for extracting appropriate data from the plurality of transmission queues;

wherein after the first data communication is carried out in accordance with a predetermined cycle time, the control means carries out an appropriate switching between the message communication and the second communication in the remaining time of the cycle time to complete one cycle, whereafter the cycle is repeatedly carried out.

4. The control station of Claim 3, further comprising:

a function for independently establishing the cycle time; and

a function for establishing the current cycle time by making reference to the independently established cycle time at each communication cycle.

5. A control station for use in a network system for carrying out communication between the control station and a plurality of devices connected to a network, wherein such communication includes data communication which requires real-time attributes and message communication which does not require real-time attributes, comprising:

a function for independently establishing a cycle time;

means for determining the current cycle time by making reference to the independently established cycle time at each communication cycle, wherein after the data communication is carried out, the message communication is carried out in the remaining time of the cycle time to complete one cycle; and

means for repeatedly carrying out the cycle.

6. A network system for carrying out data communication which requires real-time attributes and message communication which does not require real-time attributes, comprising:

a control station and a plurality of devices connected to a network;

wherein the control station includes a function to independently establish the total volume of message data transmitted in the next cycle during communication; and

wherein the devices carry out communication in manner that does not exceed the total volume of message communication established by the control station at each communication cycle.

7. A control station for use in a network system for carrying out communication between the control station and a plurality of devices connected to a network, wherein such communication includes data

communication which requires real-time attributes and message communication which does not require real-time attributes, comprising:

a function to independently establish the total volume of message data transmitted in the next cycle during communication; and

control means which carries out a control process to ensure the devices carry out communication in manner that does not exceed the total volume of message communication established by the control station at each communication cycle.

8. A device for use in a network system for carrying out communication between a control station and a plurality of devices connected to a network, comprising:

a plurality of transmission queues for temporarily storing transmission data;

means for storing transmission data in the plurality of transmission queues;

control means for extracting appropriate data from the plurality of transmission queues; and

transmission means for transmitting transmission data extracted by the control means;

wherein at least one of the transmission queues holds transmission data requiring priority transmission.